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MINERAL LAND CLASSIFICATION OF NEVADA COUNTY, CALIFORNIA

1990

MAPS

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SPECIAL REPORT 164

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Plate 1

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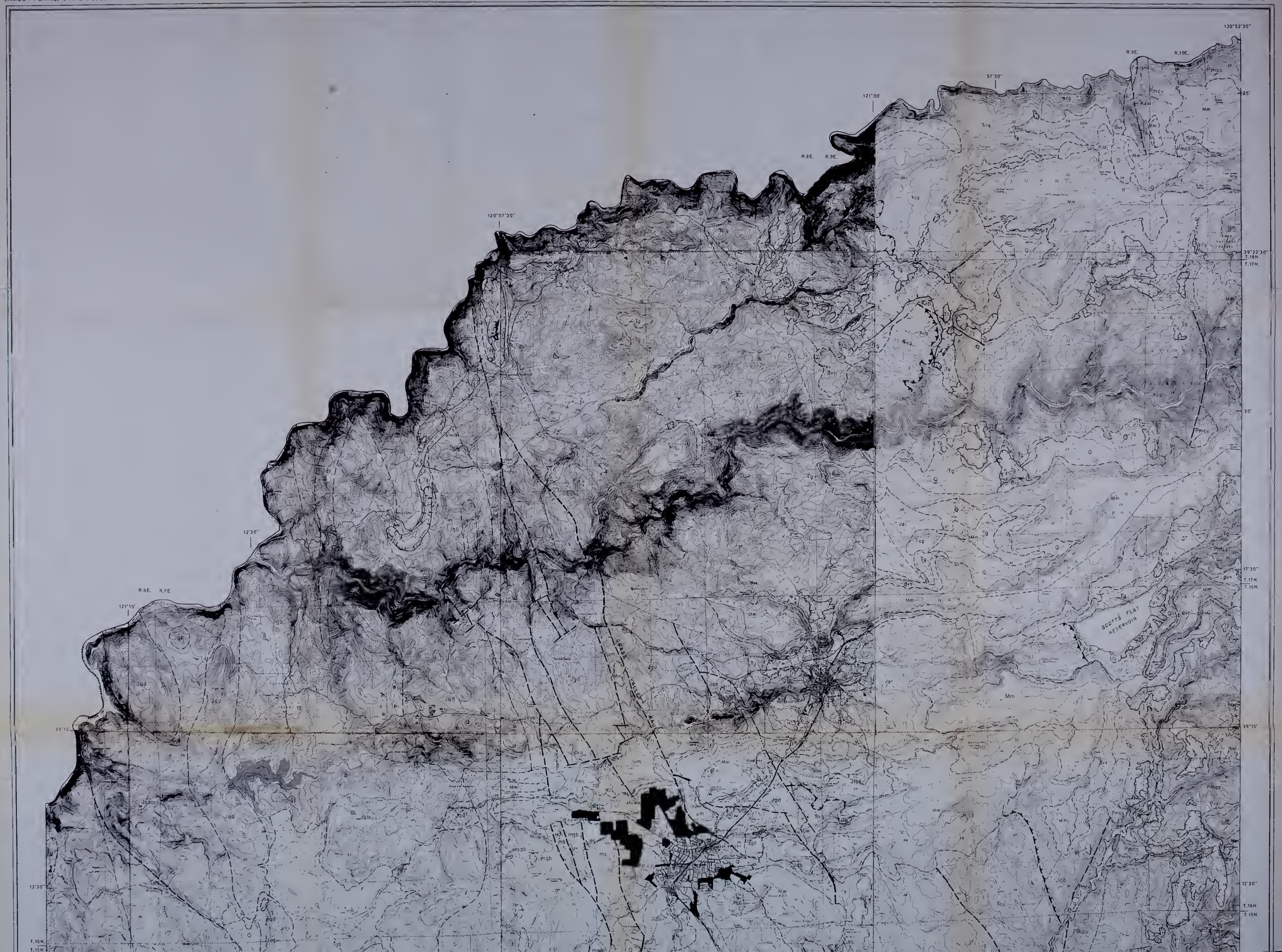
PLATE 1a



Mosaicked from Oregon House, Smartsville, Camp Far West French Corral, Challange, Rough and Ready, Wolf, Camptonville, Nevada City, Grass Valley, Lake Combie, Pike, North Bloomfield, Chicago Park, and Colfax U.S.G.S. 7.5' Topographic Quadrangles.

GEOLOGIC MAP OF WESTERN NEVADA COUNTY, CALIFORNIA

by
Ralph Loyd and John Clinkenbeard

SCALE 1:48000

2 0 2 MILES

2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

2 1 0 2 KILOMETERS

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See Plate 1d for Map Explanation

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GEOLOGIC MAP OF CENTRAL NEVADA COUNTY, CALIFORNIA

by
Ralph Loyd and John Clinkenbeard

SCALE 1:48000

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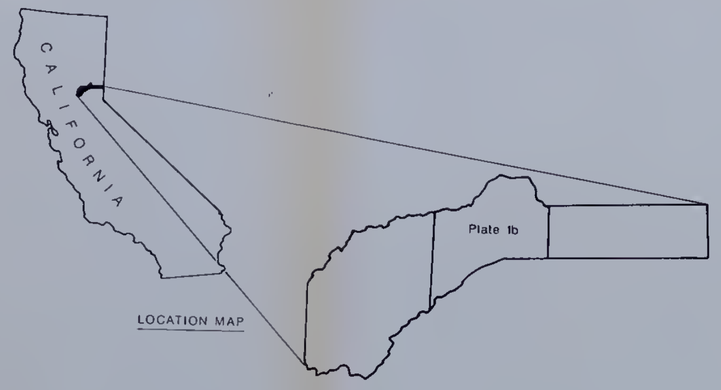
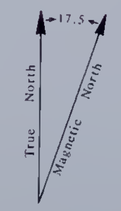
2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

2 1 0 2 KILOMETERS

1990

(See Plate 1d for Map Explanation)





Mosaicked from: Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles.

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Plate 3

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Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5' topographic quadrangles.

GEOLOGIC MAP OF EASTERN NEVADA COUNTY

by
Ralph Loyd and John Clinkenbeard

SCALE 1:48000

2 1 0 2 MILES
2000 0 2000 4000 6000 8000 10000 12000 14000 FEET
2 1 0 2 KILOMETERS

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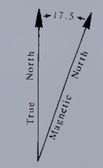

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PLATE 1d

EXPLANATION FOR GEOLOGIC MAPS OF NEVADA COUNTY, CALIFORNIA

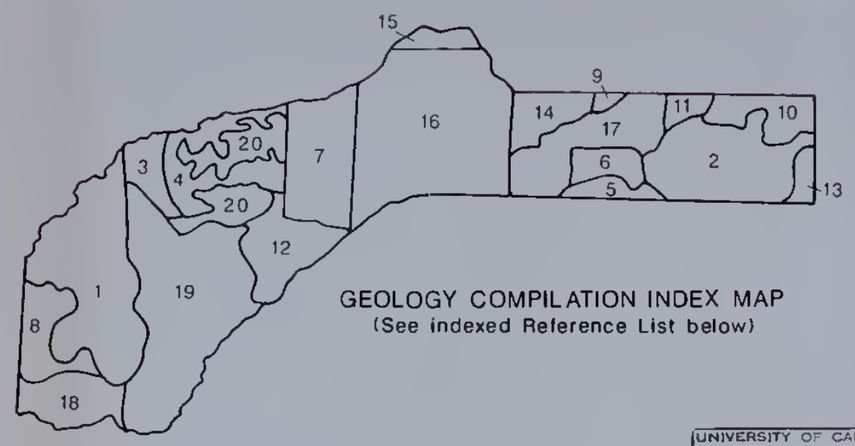
By

Ralph C. Loyd and John P. Clinkenbeard

1990

GEOLOGIC EXPLANATION

Million Years Ago	ERA	PERIOD	EPOCH		
				TERTIARY SEDIMENTARY AND VOLCANIC ROCKS	
				t	Placer dredge tailings.
				af	Artificial fill (Prosser and Martis Creek dams).
			HOLOCENE	Q	Recent alluvium and colluvium.
				Qls	Landslide deposits, lithologically similar to parent materials.
		QUATERNARY		Qos	Older Quaternary fluvial and lacustrine deposits.
				Qt	Quaternary terrace deposits.
			PLEISTOCENE	Qglt	Tahoe and Tioga glacial outwash deposits in the Martis Valley area
				Qgl	Undifferentiated glacial till, moraine, and outwash deposits of varying ages.
				Qvb	Quaternary volcanic rocks; basaltic flows, intrusions, and pyroclastic deposits.
				Qvc	Quaternary cinder cone, scoria, and tuff deposits.
24	5	1.6	0.01		
	CENOZOIC				
				Pva	Pliocene volcanic rocks; andesitic flows, intrusions, and pyroclastic deposits.
			PLIOCENE	Pvb	Pliocene volcanic rocks; basaltic flows and intrusions.
				Pvc	Pliocene cinder cone, scoria, and tuff deposits.
				Pia	Pliocene intrusive rocks; intermediate composition.
				Ps	Pliocene nonmarine sedimentary deposits; mainly stream and lake deposits including sandstone, conglomerate, diatomite, and rhyolite tuff.
		TERTIARY	MIOCENE	Mn	Mehrten Formation (Miocene-Pliocene); volcanic-derived sediments, andesitic mudflows, volcanic breccias, and minor lava flows equivalent in part to MPv exposed in eastern county region.
				MPv	Miocene-Pliocene volcanic rocks; andesitic and basaltic flows, intrusions, and pyroclastic deposits.
				MPia	Intrusive rocks; intermediate composition.
			OLIGOCENE	Ovr	Oligocene volcanic rocks; rhyolite, welded and non-welded tuff, sandstone, siltstone, claystone, and conglomerate deposits. Traditionally mapped as Valley Springs Formation (Ovs) in western Sierra Nevada foothills.
36				Ovs	Valley Springs Formation (Oligocene); rhyolite, welded and non-welded tuff, sandstone, siltstone, claystone, and conglomerate deposits. Equivalent to Ovr exposed in eastern county region.
58			EOCENE	Tg	"Auriferous Gravels" - Ancient river channel deposits dominated by sand, gravel, and cobbles derived from pre-Tertiary basement rock. Mostly Eocene in age, but may include older and younger deposits.
65			PALEOCENE		
				MESOZOIC AND PALEOZOIC METAMORPHIC AND IGNEOUS ROCKS	
				KJqr	Cretaceous-Jurassic plutonic rocks; granodiorite.
				KJqd	Cretaceous-Jurassic plutonic rocks; quartz diorite.
				KJdi	Cretaceous-Jurassic plutonic rocks; diorite.
			CRETACEOUS	KJgb	Cretaceous-Jurassic plutonic rocks; gabbro.
				Jqr	Jurassic plutonic rocks; quartz diorite to granodiorite.
				Jdi	Jurassic plutonic rocks; diorite.
				Jqd	Jurassic plutonic rocks; quartz diorite and tonalite.
				Jdb	Jurassic hypabyssal rocks; diabase.
				Jgd	Jurassic plutonic rocks; predominantly gabbro, but locally including diorite and quartz diorite.
				Jgb	Jurassic plutonic rocks; gabbro.
				Jdm	Jurassic dike rocks; mafic.
				Jmgb	Jurassic plutonic rocks; meta-gabbro (exposed in Smartville Complex).
				Jsdm	Smartville Complex (Jurassic); undifferentiated mafic flows and diabasic hypabyssal rocks.
				Jds	Smartville Complex (Jurassic); mafic sheeted dikes.
				Jss	Smartville Complex (Jurassic); volcanic-derived, fine- to medium-grained clastic sediments.
				Jva	Smartville Complex (Jurassic); hydrothermally altered volcanic rocks. These exposures are marked by pronounced silica-sericite-pyrite alteration associated with polymetallic massive sulfide mineralization.
144		MESOZOIC	JURASSIC	Jv	Jurassic volcanic rocks; dominated by pyroclastic deposits of intermediate composition. Includes some fine- to medium-grain volcanic-derived sediments.
				Jvsu	Smartville Complex (Jurassic); upper volcanic unit composed predominantly of mafic to intermediate volcanic flows, flow breccias, and volcaniclastic sediments.



GEOLOGY COMPILATION INDEX MAP
(See indexed Reference List below)

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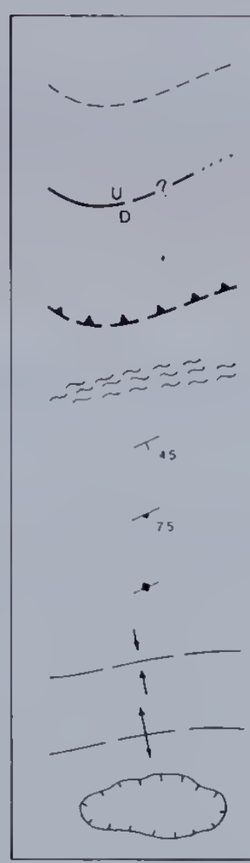

Geologic contact.

Fault trace, solid where well-located; dashed where approximate; queried where inferred; dotted where concealed. U – Upthrown block; D – downthrown block.

Thrust fault, barbs on upper plate.

Shear zone.

Attitude of bedding.

Attitude of foliation.

Strike of vertical foliation.

Axis of syncline.

Axis of anticline.

Boundary of hydraulic pit.

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CENOZOIC	PALEOCENE	EOCENE	58	
			65	
MESOZOIC	CRETACEOUS		144	
	JURASSIC		210	
	TRIASSIC		245	
PALEOZOIC	PERMIAN		280	
	CARBONIFEROUS		360	
	LATE-DEVONIAN		370	
	PRE-LATE DEVONIAN			

Tq "Auriferous Gravels" - Ancient river channel deposits dominated by sand, gravel, and cobbles derived from pre-Tertiary basement rock. Mostly Eocene in age, but may include older and younger deposits.

MESOZOIC AND PALEOZOIC METAMORPHIC AND IGNEOUS ROCKS

KJgr Cretaceous-Jurassic plutonic rocks; granodiorite.

KJqd Cretaceous-Jurassic plutonic rocks; quartz diorite.

KJdi Cretaceous-Jurassic plutonic rocks; diorite.

KJgb Cretaceous-Jurassic plutonic rocks; gabbro.

Jqi Jurassic plutonic rocks; quartz diorite to granodiorite

Jdi Jurassic plutonic rocks; diorite.

Jqd Jurassic plutonic rocks; quartz diorite and tonalite.

Jdb Jurassic hypabyssal rocks; diabase.

Jgd Jurassic plutonic rocks; predominantly gabbro, but locally including diorite and quartz diorite.

Jgb Jurassic plutonic rocks; gabbro.

Jdm Jurassic dike rocks; mafic.

Jmgb Jurassic plutonic rocks; meta-gabbro (exposed in Smartville Complex).

Jsdm Smartville Complex (Jurassic); undifferentiated mafic flows and diabasic hypabyssal rocks.

Jds Smartville Complex (Jurassic); mafic sheeted dikes.

Jss Smartville Complex (Jurassic); volcanic-derived, fine- to medium-grained clastic sediments.

Jva Smartville Complex (Jurassic); hydrothermally altered volcanic rocks. These exposures are marked by pronounced silica-sericite-pyrite alteration associated with polymetallic massive sulfide mineralization.

Jv Jurassic volcanic rocks; dominated by pyroclastic deposits of intermediate composition. Includes some fine- to medium-grain volcanic-derived sediments.

Jvsu Smartville Complex (Jurassic); upper volcanic unit composed predominantly of mafic to intermediate volcanic flows, flow breccias, and volcaniclastic sediments.

Jvsl Smartville Complex (Jurassic); lower volcanic unit composed predominantly of epidote-rich mafic pillow lavas and flows, along with minor chert.

Jlcu Lake Combie Complex (Jurassic); upper unit dominated by interbedded volcanic-derived sediments along with pyroclastic tuffs and minor volcanic flows.

Jlcm Lake Combie Complex (Jurassic); middle unit dominated by interbedded pyroclastic tuffs, tuff-breccias, and volcanic flows along with subordinate volcanic derived sediments.

Jlcl Lake Combie Complex (Jurassic); lower unit dominated by interbedded volcanic flows, flow-breccias, and pyroclastic tuff-breccias.

Jmv Tuttle Lake Formation (Jurassic); metavolcanic lava flow and breccia deposits of mafic to andesitic composition.

Jsc Sailor Canyon Formation (Jurassic); tuffaceous sandstone and volcanic conglomerate deposits.

JTrls Jura-Triassic limestone and calc-silicate rocks.

ms Tectonic melange; composed predominantly of chaotic assemblage of chert and argillite beds exposed along Wolf Creek and Weimar fault zones. Believed to correlate with rocks of the Triassic(?) Clipper Gap Formation.

Trcg Clipper Gap Formation (Triassic?); highly disrupted assemblage of interbedded and massive beds of chert and argillite. Locally tectonically intermixed within a slate matrix (sedimentary melange).

gb Pre-Tertiary plutonic rocks; gabbro.

mgb Pre-Tertiary meta-gabbro.

un Pre-Tertiary serpentinized ultramafic rock.

Pmcm Calaveras Complex melange (Permian-Triassic?); chaotic assemblage of metasedimentary and metavolcanic rock.

Pmcs Calaveras Complex metasedimentary rocks (Permian-Triassic?); predominantly phyllite, diamictite, and chert.

Pmcv Calaveras Complex volcanic rocks (Permian-Triassic?), predominantly andesitic tuff and tuffaceous sediments, but including, flow, breccia, and hypabyssal rocks.

Pnr Reeve Formation (Permian); includes tuff, siltstone, volcanic breccia, and conglomerate.

Cp Peale Formation (Carboniferous); rhythmically bedded radiolarian chert, interbedded shale, and chert breccia.

Dsb Sierra Buttes Formation (Devonian); tuffaceous siltstone and shale, silicic tuff-breccia, andesitic tuff turbidites, and black phosphatic radiolarian chert.

Dg Grizzly Formation (Devonian); conglomerate and quartzose sandstone exposed along Penner and Culbertson Lakes.

Dgrd Devonian plutonic rocks of the Bowman Lake batholith; biotite-hornblende granodiorite.

Dgr Devonian plutonic rocks of the Bowman Lake batholith; biotite granite.

Dtr Devonian plutonic rocks of the Bowman Lake batholith; trondhjemite.

Pzsfm Shoo Fly Complex (Early Paleozoic); tectonic melange unit composed of angular blocks of volcanic and arkosic sandstone, chert, volcanic, and carbonate rock in a shaly matrix.

Pzsfs Shoo Fly Complex (Early Paleozoic); quartzo-feldspathic sandstone and quartzite unit. Also includes subordinate chert, carbonaceous slate, quartz pebble conglomerate, phyllite, and limestone.

Pzsfl Shoo Fly Complex (Early Paleozoic); carbonate unit, includes limestone, dolomite, and marble. In part oolitic and pisolitic and locally containing minor amounts of quartz sandstone, chert, argillite, and basalt.

Pzsfv Shoo Fly Complex (Early Paleozoic); volcanic unit. Composed mainly of mafic flows, locally pillowed.

Pzsfc Shoo Fly Complex (Early Paleozoic); chert unit. Rhythmically-bedded radiolarian and sponge spicule-bearing chert with minor argillite and calcareous sediments.

Boundary of hydraulic pit.

Hodos, Ellen F., 1983, Unpublished geologic mapping for Placer Service Corporation, Tertiary stratigraphy from: Lindgren, Waldemar, 1900 (see reference 12).

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PLATE 2a

(S&G)A-6

h-12
h-11

(S&G)A-3

(S&G)A-15
(p-5)

(S&G)A-16

(S&G)A-3

p-2
(S&G)A-5

h-8

(CS)M-2
h-5

p-5
3
(S&G)A-17

(S&G)A-3

(S&G)A-17

(S&G)A-18

(S&G)A-2

h-5

h-9

(S&G)A-2

(S&G)A-8

(S&G)A-8

h-6

h-8

h-7

(S&G)A-1
(CS)M-1

BEALE AIR FORCE BASE

39°15'
12°30"
T.16N.
T.15N.
39°07'30"
T 15N
T.14N.
2'30"
10'
120°52'30"
57'30"
121°00'
R.9E.
R.10E

Mosaicked from: Oregon House, Smartville, Camp Far West French Corral, Challenge, Rough and Ready, Woll, Camptonville, Nevada City, Glass Valley, Lake Combie, Pike, North Bloomfield, Chicago Park, and Colfax U.S.G.S. 7.5' Topographic Quadrangles.

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MINERAL LAND CLASSIFICATION MAP
WESTERN NEVADA COUNTY
(Areas Classified MRZ-2a and MRZ-2b for all Mineral Deposits)

by
Ralph Loyd and John Clinkenbeard

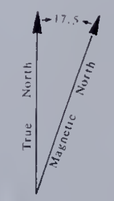
SCALE 1:48000

1990

LOCATION MAP

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST



MINE/PROSPECT SYMBOLS

12	●	Gold, Lode
33	◑	Copper-Zinc
373	×	Placer Gold
4	○	Chromite
410	■	Sand and Gravel
446	□	Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)
NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

EXPLANATION

p-3 i-4 A-15	Areas classified MRZ-2a or MRZ-2b (undifferentiated) with area reference numbers keyed to text decriptions (See part 1-Data Presentation section for explanation).
h	Areas classified for deposits formed by hydrothermal processes (eg. gold, silver, copper, zinc).
p	Areas classified for Placer deposits (eg. gold).
i	Areas classified for industrial mineral deposits (eg. barite, clay, silica).
(S&G)A	Areas classified for sand and gravel resources of alluvial origin.
(CS)M	Areas classified for crushed stone resources consisting of metamorphic rock.

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PLATE 2b

EXPLANATION

(S&G)A-16 h-2	Areas classified MRZ-2a or MRZ-2b (undifferentiated) with area reference numbers keyed to text descriptions (See part 1-Data Presentation section for explanation).
h	Areas classified for deposits formed by hydrothermal processes (eg. gold, silver, copper and zinc).
p	Areas classified for Placer deposits (eg. gold).
i	Area classified for industrial minerals (eg. barite, clay, silica).
(S&G)A	Areas classified for sand and gravel resources of alluvial origin.

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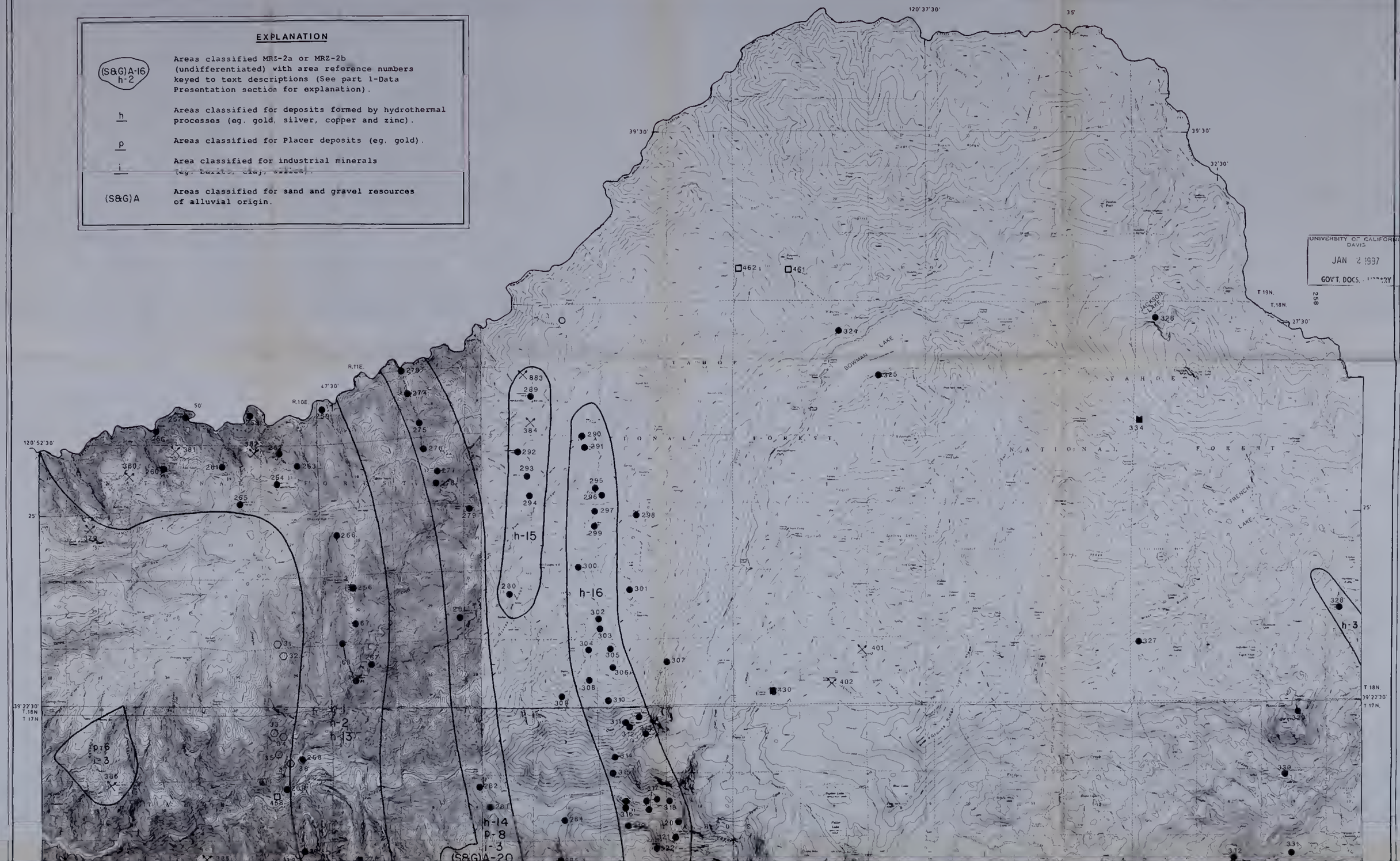

MINERAL LAND CLASSIFICATION MAP
CENTRAL NEVADA COUNTY
(Areas Classified MRZ-2a and MRZ-2b for all Mineral Deposits)

by
Ralph Loyd and John Clinkenbeard

SCALE 1:48000

1990

LOCATION MAP

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

MINE/PROSPECT SYMBOLS

100	●	Gold,Lode
334	◤	Molybdenum
41	○	Chromite
393	×	Placer Gold
1	[A]	Asbestos
2	[B]	Barite
427	■	Sand and Gravel
459	□	Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

Mosaicked from: Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles.

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PLATE 3a

MRZ-4

(h-12)
MRZ-2b

(h-11)
MRZ-2b

(h-20)
MRZ-3a

(h-18)
MRZ-3a

(h-8)
MRZ-2

(h-10)
MRZ-2b

MRZ-4

MRZ-4

(h-17)
MRZ-3a

(h-5)
MRZ-2b

(h-18)
MRZ-3a

(h-9)
MRZ-2b

(h-18)
MRZ-3a

MRZ-4

MRZ-4

(h-6)
MRZ-2b

(h-4)
MRZ-2b

MRZ-4

(h-18)
MRZ-3a

(h-7)
MRZ-2b

(h-1)
MRZ-3a

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1 Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.

MRZ-2a Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.

MRZ-2b Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.

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PLATE 2c

Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5' topographic quadrangles.

MINERAL LAND CLASSIFICATION MAP
EASTERN NEVADA COUNTY
(Areas classified MRZ-2a and MRZ-2b for all Mineral Deposits)

by
Ralph Loyd and John Clinkenbeard

SCALE 1:48000

1990

EXPLANATION

h-3	Areas classified MRZ-2a or MRZ-2b (undifferentiated) with area reference-numbers keyed to text descriptions (See part II - Data Presentation section for explanation).
(h)	Areas classified for deposits formed by hydrothermal processes (eg. gold).
(S&G)G	Areas classified for sand and gravel resources of glacial origin.
(CS)V	Areas classified for crushed stone resources consisting of volcanic rocks.

MINE/PROSPECT SYMBOLS

434 ■	Sand and Gravel
467 □	Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

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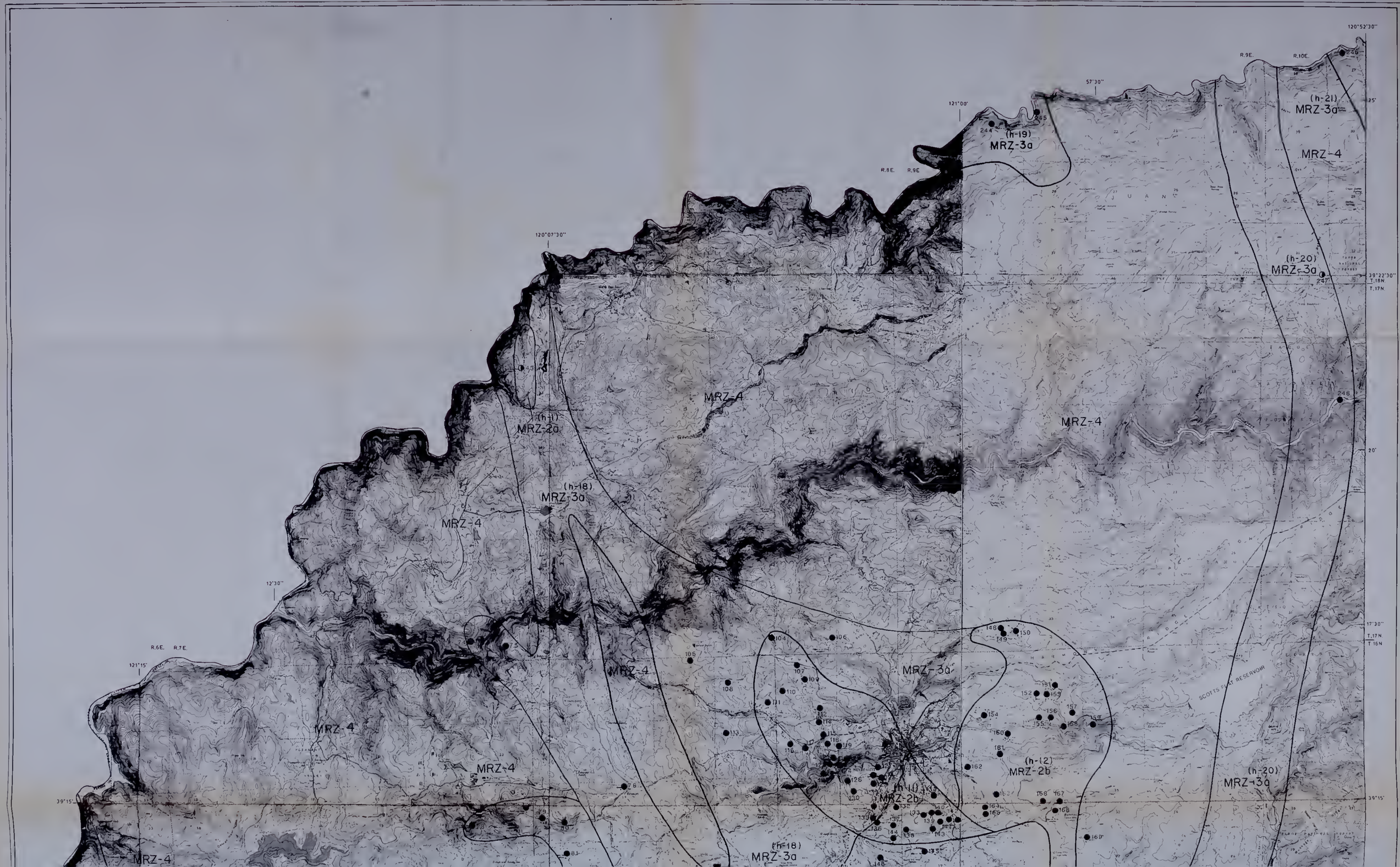

MRZ-4

(h-12)
MRZ-2b

(h-11)
MRZ-2b

(h-20)
MRZ-3a

(h-18)
MRZ-3a

(h-8)
MRZ-2

(h-10)
MRZ-2b

MRZ-4

MRZ-4

MRZ-4

(h-17)
MRZ-3a

(h-5)
MRZ-2b

(h-18)
MRZ-3a

(h-9)
MRZ-2b

(h-18)
MRZ-3a

MRZ-4

MRZ-4

(h-6)
MRZ-2b

(h-4)
MRZ-2b

MRZ-4

(h-8)
MRZ-3a

(h-7)
MRZ-2b

(h-1)
MRZ-3a

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred

Mosaicked from Oregon House, Smartville, Camp Far West, French Corral, Challenge, Rough and Ready, Wolf, Camptonville, Nevada City, Grass Valley, Lake Combie, Pike, North Bloomfield, Chicago Park, and Colfax U.S.G.S. 7 5' Topographic Quadrangles.

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MINERAL LAND CLASSIFICATION MAP
WESTERN NEVADA COUNTY

(Hydrothermal Deposits)

by
Ralph Loyd

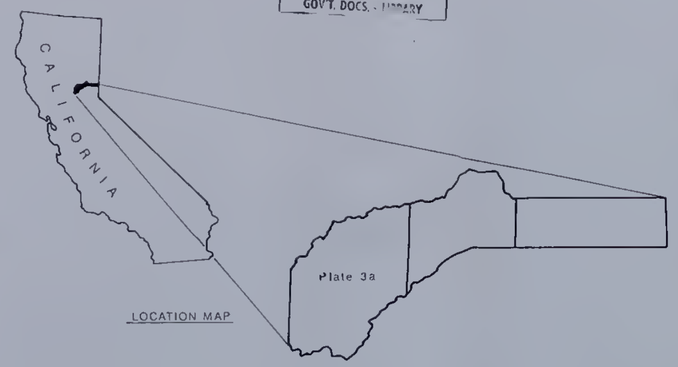
SCALE 1:48000

2 0 2 MILES

2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

1 0 1 2 KILOMETERS

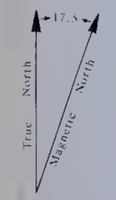
1990



LOCATION MAP

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST



MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

MINE/PROSPECT SYMBOLS

100 ● Gold, Lode

49 ◑ Copper-Zinc

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

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DMG SR 164
PLATE 3b

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

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MINERAL LAND CLASSIFICATION MAP
CENTRAL NEVADA COUNTY
(Hydrothermal Deposits)

by
Ralph Loyd

SCALE 1:48000

2 1 0 2 MILES

2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

2 1 0 2 KILOMETERS

1990

MRZ-2b (h-14)
MRZ-2b (h-15)
MRZ-2b (h-16)
MRZ-3g (h-23)
MRZ-3g (h-21)
MRZ-3b (h-22)
MRZ-4
MRZ-4

LAKE SPAULDING

NATIONAL FOREST

120°37'30" 35' R.12E. R.13E. 32'30" 120°30'

R.12E. R.11E. 40' 42'30" 17'30"

T.17N. T.16N. T.15N.

39°15'

12'30"

20'

MINE/PROSPECT SYMBOLS

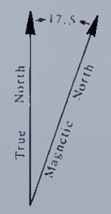
282 ● Gold, Lode

334 ■ Molybdenum

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

LOCATION MAP



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STATE GEOLOGIST

Mosaicked from: Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles

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Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5 topographic quadrangles.

MINERAL LAND CLASSIFICATION MAP
EASTERN NEVADA COUNTY
(Hydrothermal Deposits)

by
Ralph Loyd

SCALE 1:48000

1990

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

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MRZ-1

MRZ-4

(p-14)
MRZ-3a

(p-15)
MRZ-3a

(p-15)
MRZ-2b

(p-16)
MRZ-3a

MINERAL RESOURCE ZONE CATEGORIES

Mosaicked from: Oregon House, Smartville, Camp Far West, French Corral, Challenge, Rough and Ready, Wolf, Camptonville, Nevada City, Glass Valley, Lake Combie, Pike, North Bloomfield, Chicago Park, and Colfax U.S.G.S. 7.5' Topographic Quadrangles

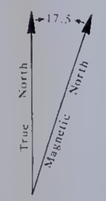
MINERAL LAND CLASSIFICATION MAP
WESTERN NEVADA COUNTY

(Placer Deposits)

by
Ralph Loyd

SCALE 1:48000

1990



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MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

MINE/PROSPECT SYMBOLS

373 Placer Gold

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

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Plate 12

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MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
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MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

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CENTRAL NEVADA COUNTY
(Placer Deposits)

by
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SCALE 1:48000

2 0 2 MILES

2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

2 1 0 2 KILOMETERS

1990

MRZ-4

(p-14) MRZ-3a

(p-6) MRZ-2b

(p-8) MRZ-3a

(p-19) MRZ-3b

(p-8) MRZ-2b

(p-17) MRZ-3a

(p-14) MRZ-3a

MRZ-1

(p-7) MRZ-2b

(p-15) MRZ-3a

(p-16) MRZ-3a

(p-17) MRZ-3a

(p-15) MRZ-3a

MRZ-1

MRZ-4

LAKE SPAULDING

120°37'30" 35' R.12E. R.13E. 32'30" 120°30'

R.12E. R.11E. 42'30" 40'

T.17N T.16N

T.16N T.15N

39°15'

12'30"

20'

17'30"

CALIFORNIA

Plate 4b

LOCATION MAP

17.5°

True North

Magnetic North

MINE/PROSPECT SYMBOLS

390 Placer Gold

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

James F. Davis
STATE GEOLOGIST

Mosaicked from Alleghany, Washington, Dutch Flat, Sierra City, Granitеville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles

TN24
C3
A33
no.164
Plate 13

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DMG SR 164
PLATE 4c

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THE RESOURCES AGENCY-GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONVERSATION-RANDALL M. WARD, DIRECTOR

Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5' topographic Quadrangles.

MINERAL LAND CLASSIFICATION MAP
EASTERN NEVADA COUNTY
(Placer Deposits)

by
Ralph Loyd

SCALE 1:48000

1990

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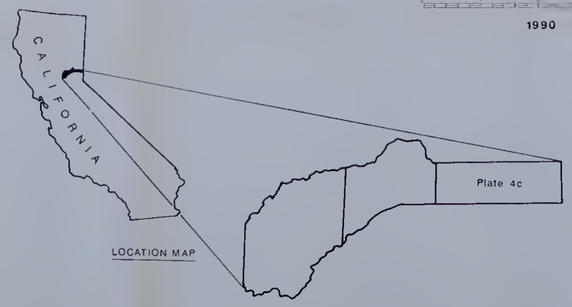
MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.



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STATE GEOLOGIST

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PLATE 5a

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MRZ-1

MRZ-4
(chromite)

MRZ-4
(chromite)

MRZ-3a
(quartz)

(l,m)
MRZ-1

MRZ-4
(chromite)

(l,m)
MRZ-1

(m-l)
MRZ-3a
(chromite)

(m-l)
MRZ-3a
(chromite)

(l,m)
MRZ-1

(l,s)
MRZ-3a
(clay, barite)

(l,m)
MRZ-1

(m-l)
MRZ-3a
(chromite)

Mosaicked from Oregon House, Smartville, Camp Far West, French Corral, Challenge, Rough and Ready, Wolf, Camptonville, Nevada City, Grass Valley, Lake Combie, Pike, North Bloomfield, Chicago Park, and Colfax U.S.G.S. 7 5' Topographic Quadrangles

MINERAL RESOURCE ZONE CATEGORIES

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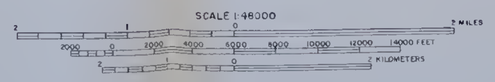
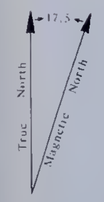
MINERAL LAND CLASSIFICATION MAP
WESTERN NEVADA COUNTY

(Industrial Minerals and Deposits formed by Magmatic Segregation)

by
Ralph Loyd



1990



PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

MINE/PROSPECT SYMBOLS

⬡4	Chromite
⊡456	Quartz

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)
NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

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Plate 15

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THE RESOURCES AGENCY-GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONSERVATION-RANDALL M. WARD, DIRECTOR

DMG SR 164
PLATE 5b

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
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MINERAL LAND CLASSIFICATION MAP

CENTRAL NEVADA COUNTY

(Industrial Minerals and Deposits formed by Magmatic Segregation)

by

Ralph Loyd

SCALE 1:48000

1990

MRZ-4

MRZ-3a (chromite, talc, asbestos)

(i-3) MRZ-2b (quartz)

(i-4,8) MRZ-3a (quartz, clay)

(i-6) MRZ-3b (carbonate rock)

LAKE VALLEY RESERVOIR

(i-4,8) MRZ-3a (clay, quartz)

(i-4,8) MRZ-3a (clay, quartz)

(i-4,8) MRZ-3a (clay, quartz)

(i-4,8) MRZ-3a (clay, quartz)

(i-4,8) MRZ-3a (clay, quartz)

(i-4,8) MRZ-3a (clay, quartz)

(i-2) MRZ-2b (barite)

T.18N. 39°22'30" T.17N.

T.17N. 17'30"

T.16N.

T.15N.

39°15'

12'30"

120°37'30" 35' R.12E. R.13E. 32'30" 120°30'

R.12E. R.11E. 40' 42'30"

T.17N. T.16N.

CALIFORNIA

LOCATION MAP

Plate 5b

17.5°

True North

Magnetic North

MINE/PROSPECT SYMBOLS

41	○	Chromite
1	A	Asbestos
2	B	Barite

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

James T. Davis
STATE GEOLOGIST

Mosaicked from: Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles

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Plate 16

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THE RESOURCES AGENCY-GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONVERSATION-RANDALL M. WARD, DIRECTOR

Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5' topographic quadrangles.

MINERAL LAND CLASSIFICATION MAP
EASTERN NEVADA COUNTY
(Industrial Minerals and Deposits formed by Magmatic Segregation)

by
Ralph Loyd

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PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

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MINERAL RESOURCE ZONE CATEGORIES

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MRZ-3b	Areas containing inferred mineral occurrences of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

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Plate 17

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PLATE 6a

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STATE OF CALIFORNIA-GEORGE DEUKMEJIAN, GOVERNOR
THE RESOURCES AGENCY-GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
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MINERAL RESOURCE ZONE CATEGORIES

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MINERAL LAND CLASSIFICATION MAP

WESTERN NEVADA COUNTY

(Construction Aggregate Deposits)

by
John Clinkenbeard

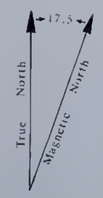
SCALE 1:48000

1990

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

LOCATION MAP



CONSTRUCTION AGGREGATE RESOURCE IDENTIFIERS

Crushed stone		Sand and gravel	
(CS)I	Plutonic igneous rocks	(S&G)G	Glacial deposits
(CS)V	Volcanic igneous rocks	(S&G)A	Alluvial deposits
(CS)M	Metemorphic rocks		

MINE/PROSPECT SYMBOLS

- ■ 411 Sand and Gravel
- □ 446 Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

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Plate 18

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DEPARTMENT OF CONSERVATION-RANDALL M. WARD, DIRECTOR

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Mines and Geology
DMG SR 164
PLATE 6b

CONSTRUCTION AGGREGATE RESOURCE IDENTIFIERS

Crushed stone		Sand and gravel	
(CS)I	Plutonic igneous rocks	(S&G)G	Glacial deposits
(CS)V	Volcanic igneous rocks	(S&G)A	Alluvial deposits
(CS)M	Metemorphic rocks		

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MINERAL LAND CLASSIFICATION MAP

CENTRAL NEVADA COUNTY

(Construction Aggregate Deposits)

by
John Clinkenbeard

SCALE 1:48000

1990

LOCATION MAP

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
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MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

MINE/PROSPECT SYMBOLS

■427 Sand and Gravel

□459 Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

Mosaicked from Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn., and Cisco Grove U.S.G.S. 7 5' Topographic Quadrangles.

TN24
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A33
no.164
Plate 19

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PLATE 6c

STATE OF CALIFORNIA--GEORGE DEUKMEJIAN, GOVERNOR
THE RESOURCES AGENCY--GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONSERVATION--RANDALL M. WARD, DIRECTOR

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS, STATE GEOLOGIST

MINERAL LAND CLASSIFICATION MAP

EASTERN NEVADA COUNTY

(Construction Aggregate Deposits)

by

John Clinkenbeard

SCALE 1:48000

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PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

Mosaicked from Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5 topographic quadrangles.

CONSTRUCTION AGGREGATE RESOURCE IDENTIFIERS

Crushed stone	Sand and gravel
(CS)I Plutonic igneous rocks	(S&G)G Glacial deposits
(CS)V Volcanic igneous rocks	(S&G)A Alluvial deposits
(CS)M Metemorphic rocks	

MINE/PROSPECT SYMBOLS

434 ■ Sand and Gravel

467 □ Crushed Stone

(Numbers adjacent to symbols index mine/prospect references in the text and listing in Appendix A.)

NOTE: Active mines, inactive mines, and prospects are not distinguished on maps.

MINERAL RESOURCE ZONE CATEGORIES

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
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17.5°

True North

Magnetic North

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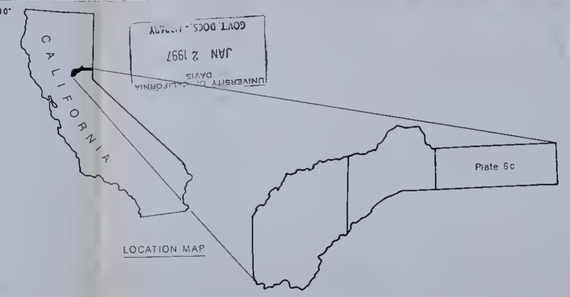

LOCATION MAP

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A33
NO.164
Plate 20

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AGGREGATE RESOURCE AREAS WESTERN NEVADA COUNTY

(Areas classified MRZ-2a or MRZ-2b for aggregate and deemed to be available for mining)

LOCATION MAP

by
John Clinkenbeard

SCALE 1:48000

1990

PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

EXPLANATION

Property permitted for aggregate mining.

ARA — An Aggregate Resource Area (ARA) is an area that has been classified as MRZ-2a or MRZ-2b for construction aggregate by the State Geologist and is deemed to be available for mining based upon criteria for compatibility provided by the State Mining and Geology Board.

(IS) — IMMEDIATELY SIGNIFICANT - All lands within Aggregate Resource Areas which are currently permitted for aggregate mining.

(HS) — HIGHLY SIGNIFICANT - Aggregate Resource Areas that contain in excess of 10 times threshold value * of material (based upon criteria established by the State Mining and Geology Board), or that are adjacent to permitted property. **

(S) — SIGNIFICANT - All remaining Aggregate Resource Areas containing less than 10 times threshold value of material (based upon criteria established by the State Mining and Geology Board). **

* Threshold value at the time of this report is approximately 9.7 million dollars or approximately 1.94 million tons of aggregate in the study area.

** If conditions warrant, an Aggregate Resource Area category can be changed from HS to S or from S to HS. These conditions may include, but are not limited to, local scarcity of commodity, proximity to operating aggregate mine, and distance from market areas.

TN24
C3
A33
no.164
Plate21

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PLATE 7b

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STATE OF CALIFORNIA-GEORGE DEUKMEJIAN, GOVERNOR
THE RESOURCES AGENCY-GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONSERVATION-RANDALL M. WARD, DIRECTOR

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120°37'30" 35' 32'30" 27'30"

39°30'

T.19N.
T.18N.

R.11E R.10E. R.12E R.13E.

47'30" 50' 25' 20'

120°52'30"

39°22'30"
T.18N.
T.17N.

TAHOE NATIONAL FOREST

BOWMAN LAKE
JACKSON LAKE
FRENCH LAKE
LAKE SPAULDING

ARA-26

AGGREGATE RESOURCE AREAS CENTRAL NEVADA COUNTY

(Areas classifled MRZ-2a or MRZ-2b for aggregate and deemed to be available for mining)

by

John Clinkenbeard

SCALE 1:48000

2 0 2 MILES

2000 0 2000 4000 6000 8000 10000 12000 14000 FEET

2 0 2 KILOMETERS

ARA-26

ARA-11

ARA-25

ARA-16

ARA-24

ARA-23

17.5°

True North

Magnetic North

CALIFORNIA

PLATE 7b

LOCATION MAP

EXPLANATION

Property permitted for aggregate mining.

ARA

An Aggregate Resource Area (ARA) is an area that has been classified as MRZ-2a or MRZ-2b for construction aggregate by the State Geologist and is deemed to be available for mining based upon criteria for compatibility provided by the State Mining and Geology Board.

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PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

STATE GEOLOGIST

Mosaicked from: Alleghany, Washington, Dutch Flat, Sierra City, Graniteville, Blue Canyon, Haypress Valley, English Mtn. and Cisco Grove U.S.G.S. 7.5' Topographic Quadrangles.

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THE RESOURCES AGENCY–GORDON K. VAN VLECK, SECRETARY FOR RESOURCES
DEPARTMENT OF CONSERVATION–RANDALL M. WARD, DIRECTOR

DIVISION OF MINES AND GEOLOGY
JAMES F. DAVIS, STATE GEOLOGIST

Mosaicked from: Soda Springs, Webber Peak, Independence Lake, Norden, Hobart Mills, Truckee, Boca, and Martis Peak U.S.G.S. 7.5' topographic quadrangles.

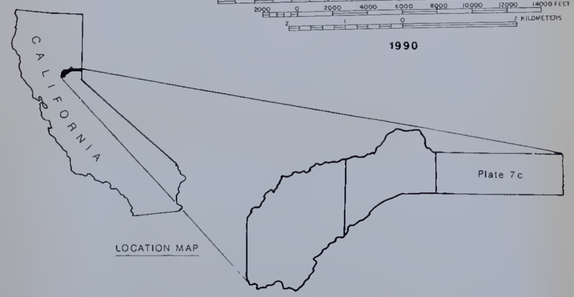
AGGREGATE RESOURCES AREAS EASTERN NEVADA COUNTY

(Areas classified MRZ-2a or MRZ-2b for aggregate and deemed to be available for mining)

by
John Clinkenbeard

SCALE 1:48000
2 MILES
2000 0 2000 4000 6000 8000 10000 12000 14000 FEET
2 KILOMETERS

1990



EXPLANATION

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PREPARED IN COMPLIANCE WITH THE SURFACE MINING AND RECLAMATION ACT OF 1975, ARTICLE 4, SECTION 2761

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COLLATE:

22 PIECES